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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BMK/W.No.14/WMM/Gradation/2015-16

28.04.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Mr. B. Mohan Kumar,** Contractor, Bangalore.

Name of Work : Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015

Date of Testing : 28.04.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8250**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	325	325	3.9	96.1	95-100
22.4	2250	2575	31.2	68.8	60-80
11.2	1375	3950	47.9	52.1	40-60
4.75	1280	5230	63.4	36.6	25-40
2.36	965	6195	75.1	24.9	15-30
0.600	840	7035	85.3	14.7	8-22
0.075	725	7760	94.1	5.9	0-8

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Job No.: CTCE/BBMP/BMK/W.No.14/WMM/AIV/2015-16 28.04.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
Name of the Work	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	28.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	386	387	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	299	
4	Aggregate Impact value = percent fines	22.02	22.74	
	100* (W_2/W_1)%			22.38

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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ಹಿರಿಯ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಟಿ. ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಪಾಲಗೊಂಡ, ಬೆಂಗಳೂರು - 560 073

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Job No.: CTCE/BBMP/BMK/W.No.14/WMM/S-T/2015-16 28.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
Name of Work	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	28.04.2015

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Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **11.85%**

Elongation Index = **13.96%**

Result : Combined Flakiness & Elongation index 25.81%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
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Job No.: CTCE/BBMP/BMK/W.No.14/WMM/AL/2015-16

28.04.2015

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Mr. B. Mohan Kumar,** Contractor, Bangalore.

Name of Work : Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.

Reference : BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015

Date of Testing : 28.04.2015

Material : WMM

Sample Location : WMM Mix Plant

As per MORTH Table 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	23.50	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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ಟಿ. ದಾಸರಹಳ್ಳಿ ಉಪ ವಿಭಾಗ
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QUALITY CONTROL REPORTS FOR

SEMI DENSE BITUMINOUS CONCRETE

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T-2377

Job No.: CTCE/BBMP/BMK/W.No.14/CSR-04/828d/QB(SDBC)/2015-16 02.05.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* CUSTOMER	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
*NAME OF THE WORK	:	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
*REFERENCE	:	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	30.04.2015
DATE OF TESTING	:	02.05.2015

The results of the tests conducted on the bitumen sample for Semi Dense Bituminous Concrete are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	92	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	292	Min. 220

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VISHWANATH .C
Quality Manager

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Job No.: CTCE/BBMP/BMK/W.No.14/SDBC/AIV/2015-16 02.05.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
Name of the Work	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	02.05.2015

Sl No.	Details	Trial No. 1	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	84.5	302	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.45	22.37	**21.91**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/BMK/W.No.14/SDBC/Shape_T/2015-16 : 02.05.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
Agency	: **Mr. B. Mohan Kumar,** Contractor, Bangalore.
Name of Work	: Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
Reference	: BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 02.05.2015

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Result : Flakiness Index = **12.68%**

Elongation Index = **13.74%**

Result : Combined Flakiness & Elongation index **26.42%**

Comments:

→ Maximum allowable Flakinee & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/BMK/W.No.14/SDBC/TC/2015-16 05.05.2015

DETERMINATION OF RATE OF SPREAD TACK COAT

CUSTOMER	:	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	:	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
NAME OF THE WORK	:	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
REFERENCE	:	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
SAMPLE ID	:	Main road in Bagalagunte
DATE OF TESTING	:	05.05.2015

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	mt	0.45 X 0.45	0.45 X 0.45
Area of Plate (a)	Sq.m	0.2025	0.2025
Intial Wt of empty Plate (b)	Kg	1.568	1.532
Final weight of plate after application of prime /Tack Coat (c)	Kg	1.654	1.652
Weight of Prime/Tack Coat (d=c-b)	Kg	0.086	0.120
Rate of spread of prime /tack coat	kg/Sq.m	0.425	0.593
Average	kg/Sq.m	0.509	
Specified Limit	kg/Sq.m	0.50 Kg/sq.m	

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Job No.: CTCE/BBMP/BMK/W.No.14/SDBC/Bit/2015-16 05.05.2015

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CUSTOMER	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
NAME OF THE WORK	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
SAMPLE I/D	Main road in Bagalagunte W.No.14
DATE OF TESTING	05.05.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	476.5	475.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	23.5	24.50
7. Bitumen content in %	4.70	4.90
8. Average	**4.80**	

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Job No.: CTCE/BBMP/BMK/W.No.14/SDBC/Bit/2015-16 05.05.2015

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** T. Dasarahalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B. Mohan Kumar,** Contractor, Bangalore.
NAME OF THE WORK	Filling of Pot holes in Main and Cross roads in Bagalagunte Ward No.14, BBMP, Bangalore.
REFERENCE	BBMP/DZ/AEE/TDSD/PR/2015-16 Dated: 02.04.2015
SAMPLE I/D	Main road in Bagalagunte W.No.14
DATE OF TESTING	05.05.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	33.62	7.06	7.06	92.94	90-100
4.75	252.4	52.97	60.03	39.97	35-51
2.36	56.74	11.91	71.93	28.07	24-39
1.18	36.25	7.61	79.54	20.46	15-30
0.3	31.28	6.56	86.10	13.90	9-19
0.075	38.76	8.13	94.24	5.76	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	33.63	7.07	7.07	92.93	90-100
4.75	261.7	55.04	62.11	37.89	35-51
2.36	33.48	7.04	69.15	30.85	24-39
1.18	37.52	7.89	77.04	22.96	15-30
0.3	38.95	8.19	85.23	14.77	9-19
0.075	41.23	8.67	93.90	6.10	3-8

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